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CLAIMS

1. A stent for supporting part of a blood vessel which stent includes a supporting portion around which or within which part of an intact blood vessel other than a graft can be placed so that the stent internally or externally supports that part and the supporting portion of the stent is of a shape and/or orientation which corresponds to the geometry of the vessel whereby flow within the stent-supported such vessel can follow a non-planar curve if present in the vessel at the site of the stent.
2. A stent for an intact blood vessel other than a graft which is adapted to flex three dimensionally but which maintains sufficient torsional flexibility to accommodate and maintain in use non-planar curvature present in arteries or veins.
3. A stent as claimed in claim 1 or 2 wherein the supporting portion of the stent is fabricated to incorporate a non-planar curved form.
4. A stent as claimed in any preceding claim wherein the supporting portion is fabricated to incorporate a geometric arrangement of the vessel whereby the tangent vector from the centreline of the stent intersects the centreline of the vessel by consequence of a symmetric disposition of the stent with respect to the vessel at the junction with the stent.
5. A stent as claimed in any preceding claim which is of generally hollow tubular shape with three-dimensional curvature.
6. A stent as claimed in any one of claims 1 to 4 in the form of an open lattice generally tubular framework with

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Sub.a1 > discrete openings at each end thereof.

7. A stent as claimed in any preceding claim comprising a first supporting structure adapted to support or otherwise contact part of the vessel, with a secondary supporting structure extending away from the first supporting structure, but simultaneously capable of supporting the vessel part, said secondary structure capable of maintaining a vessel part when located therein in non-planar curvature.

8. A stent as claimed in claim 7 wherein the secondary supporting structure comprises a plurality of elongate members linked in the region of their ends remote from the first supporting structure.

Sub.a2 > 9. A stent as claimed in claim 7 or 8 wherein said elongate members define a curved section whose curvature is non-planar.

10. A stent as claimed in any preceding claim fabricated from a material capable of torsional flexibility, such as from shape memory alloy.

11. A stent as claimed in any preceding claim which is for use in supporting a vessel part internally, fabricated from a linked mesh or series of linked wire members which is coiled or partly coiled or helical or partly helical.

12. A stent as claimed in any preceding claim in combination with a device which assists in monitoring the condition of the vessel.

13. A stent as claimed in claim 12 wherein the device is a sensor adapted to transmit a signal responsive to one or more internal flow conditions.

14. A stent as claimed in claim 13 in which the sensor

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is ring-shaped and is electrically connected to a remote module incorporating power supply, signal detection and recording means.

Sub a3 > 15. A stent as claimed in claim 13 or 14 wherein the sensor is adapted to transmit signals which can be monitored by ultrasound and/or magnetic resonance imaging and/or electron spin resonance imaging techniques.

16. A stent as claimed in any one of claims 13 to 15 wherein the sensor portion forms an integral part of the stent and the means of excitation and signal detection are entirely extracorporeal.

17. A stent for supporting part of an intact blood vessel other than a graft which stent includes a supporting portion around which or within which part of that blood vessel can be placed so that the stent internally or externally supports that part, in combination with at least one sensor device adapted to assist monitoring the condition of the vessel.

18. A stent as claimed in claim 17 wherein the sensory device is adapted to transmit a signal responsive to one or more internal flow conditions within the vessel part.

Sub a4 > 19. A stent as claimed in claim 17 or 18 wherein the sensory device is ring-shaped and is electrically connected to a remote module incorporating power supply, signal detection and recording means.

20. A stent as claimed in any one of claims 17 to 19 wherein the sensory device is adapted to transmit signals which can be monitored by ultrasound and/or magnetic resonance imaging and/or electron spin resonance techniques.

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Sub. a4 > 21. A stent as claimed in any one of claims 17 to 20 wherein the sensory device forms an integral part of the stent and the means of excitation and signal detection are ~~entirely~~ extracorporeal.

22. A vascular stent capable of insertion into or attachment externally to an intact blood vessel other than a graft which is adapted to impose non-planar flow therein or adopt its configuration in use to the geometry of the blood vessel so as to maintain therein any blood flow therein which is non-planar.

Sub. a5 > 23. A stent as claimed in claim 22 in combination with a ~~sensor device as defined in any of claims 13 to 21.~~

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